(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property **Organization** International Bureau





(43) International Publication Date 10 November 2005 (10.11.2005)

PCT

(10) International Publication Number WO 2005/104767 A2

(51) International Patent Classification:

(21) International Application Number:

PCT/US2005/014514

Not classified

(22) International Filing Date: 27 April 2005 (27.04.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

US 27 April 2004 (27.04.2004)

60/566,147 27 April 2004 (27.04.2004) 60/566,148 US

- (71) Applicant (for all designated States except US): ARI-ZONA BOARD OF REGENTS [US/US]; University, Brickyard Suite 601, Room 691AA, 699 S. Mill Avenue, Tempe, AZ 85281 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): PONCE, Fernando, A. [US/US]; 19 East 13th Street, Tempe, AZ 85281 (US). GARCIA, Rafael [MX/US]; 1440 East Broadway, #119A, Tempe, AZ 85282 (US). THOMAS, Alan, C. [US/US]; 1328 East Horseshoe Avenue, Gilbert, AZ 85296 (US). BELL, Abigail [GB/GB]; 191 St. Peters Avenue, Kettering, Northhamptonshire NN 16 OHE (GB).

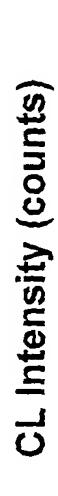
- (74) Agent: CATALFIO, Donna, H.; Gallagher & Camelback Road, Phoenix, AZ 85016-9225 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA. MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

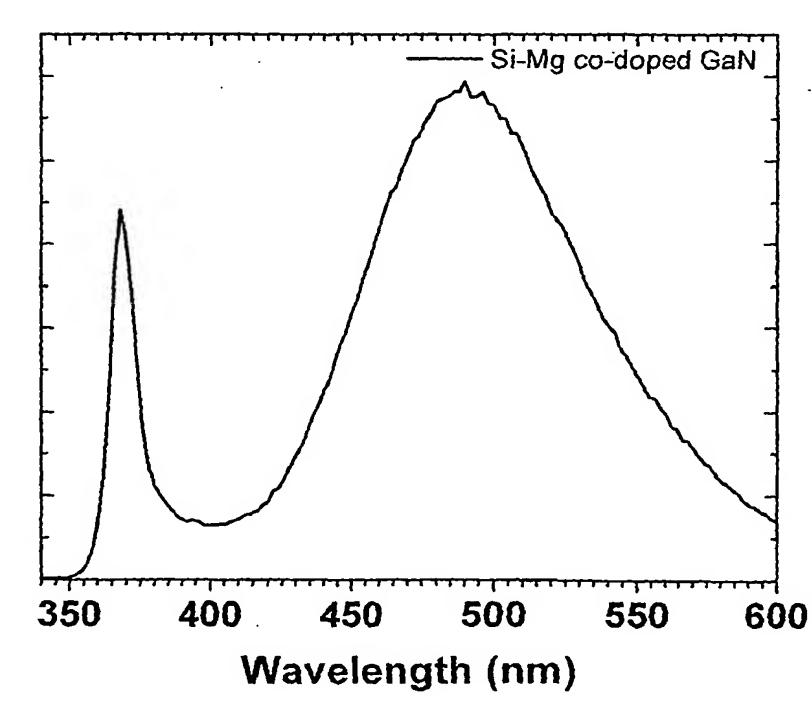
Published:

without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD TO SYNTHESIZE HIGHLY LUMINESCENT DOPED METAL NITRIDE POWDERS





(57) Abstract: A simple, inexpensive method of producing in bulk a doped metal nitride powder that exhibits a high luminescent efficiency, by first forming a metal-dopant alloy and then reacting the alloy with high purity ammonia under controlled conditions in a reactor. The resulting doped metal nitride powders will exhibit a luminescent efficiency that greatly exceeds that seen in pure undoped GaN powders, doped GaN thin films, and ZnS powders.